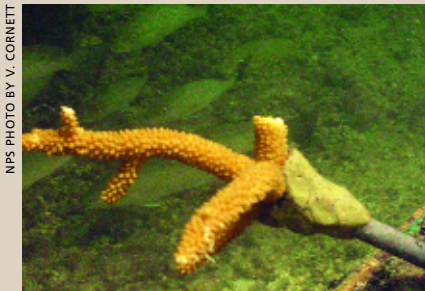


## Other Developments

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### Building a coral nursery at Biscayne National Park

by Richard Curry, Daniel DiResta, and Shay Viehman



NPS PHOTO BY V. CORNETT

With more than 20 boats running aground on coral reefs annually in Biscayne National Park, Florida, the National Park Service is challenged to protect the park's coral reefs. Add to that other disturbances such as coral disease, storms, and destructive fishing and the problem is multifaceted, requiring an integrated management strategy. Part of the solution lies in an innovative restoration program being pioneered at the park that focuses on rebuilding damaged coral reefs with coral grown in a nursery (photo, bottom). In 2002 the nursery was expanded greatly to provide material for future restoration projects.



NPS PHOTO BY SHAY VIEHMAN

The operational principles used in this hard-coral nursery are identical to those for conventional plant nurseries: manipulating environmental conditions to attain maximum growth, size, and survivability. The only difference is time; where plant nurseries cycle their product in one to four years, coral nurseries may require 10 times that.

Park scientists and volunteers populate the nursery by rescuing damaged coral fragments (photo, top) that would die if not transferred to a stable and secure location. The vessel groundings that occur on the coral reefs in the park provide more than enough material for the nursery; no additional collections are made from undamaged reefs. The park will increase its nursery

stocks by dividing the damaged colonies brought in from the reef and by fragmenting those coral colonies that have reached a suitable size (>15 centimeters, or about 6 inches).

Unlike the few other hard-coral nurseries worldwide, the four nursery sites at Biscayne are located in well-protected areas, providing easy access for monitoring and maintenance. These sites also facilitate simple experiments focused on enhancing growth and regulating growth inhibitors such as algae. Volunteers from local schools and the public assist in research and implementation of optimal nursery maintenance techniques. Other partners are the University of Miami, the National Oceanic and Atmospheric Administration, and the University of North Carolina, which are developing techniques for capturing coral sperm and eggs during annual spawning and growing them into juvenile corals in order to further increase nursery stocks. Soon, nursery-grown corals will provide an environmentally sensitive option for use in coral reef restorations. ■

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### Marine fisheries regulation in national parks

by Cliff McCreedy

The National Park Service manages 64 park units located on the coasts of the Atlantic and Pacific Oceans, the Gulf of Mexico, and the shores of the Great Lakes. Approximately 3 million acres of submerged lands and surrounding waters of these units protect different facets of our coastal heritage, including coral reefs,

coastal bays, estuaries, kelp forests, and fjords.

Fisheries management in the national parks follows regulations and management policies founded in the NPS Organic Act of 1916, which directs the National Park Service to conserve these areas unimpaired for the enjoyment of future generations.

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## Leading role for NPS in Coral Reef Task Force

by Cliff McCreedy

Twenty-seven percent of coral reefs have been lost or seriously degraded worldwide and another 60% are threatened, according to the Global Coral Reef Monitoring Network and the World Resources Institute. Charged by Executive Order 13089 to protect the nation's imperiled coral reefs, a task force of 17 federal, state, and territorial agencies are coordinating their responses to threats from impaired water quality, overfishing, coral bleaching, and disease. As part of the Department of the Interior, the National Park Service is a key player in these efforts under the U.S. Coral Reef Task Force, cochaired by the Assistant Secretary for Fish and Wildlife and Parks, Harold Craig Manson. And with more than 275,000 acres of coral reefs, the 10 coral reef national park units not only offer outstanding recreational opportunities but also a chance to protect their biodiversity and astonishing natural beauty for future generations to enjoy.

Assistant Secretary Manson said, "We need to develop an inventory of coral reef resources, conduct an assessment of the state of reefs, and monitor their health over the long term. We need to take action now to reduce pollutants and sedimentation on reefs" and "stop the overharvesting of coral reefs and the fish and animals that depend on them."

The NPS Water Resources Division is providing national policy and planning



NPS PHOTO BY MATT PATTERSON

Mangrove prop roots, coral heads, and fish in the recently designated Virgin Islands Coral Reef National Monument.

support to the task force and helping parks to meet the challenge from the assistant secretary. The National Park Service is pursuing cooperative programs with states, territories, and federal partners to manage and restore reef fish populations (see page 50) and to address sources of sedimentation and pollutants in coastal park watersheds. In 2001, Dry Tortugas National Park set aside the 46-square-mile (119-square-kilometer) research natural area as a no-take reserve to protect

shallow seagrass beds, coral reefs, and mangrove communities. General management plan updates are under way to implement no-take reserves at the new Virgin Islands Coral Reef National Monument and at the expanded Buck Island Reef National Monument. ■

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Current policies allow recreational fishing in parks consistent with state regulations and 36 *Code of Federal Regulations* part 2.3, except where specifically prohibited. However, commercial fishing is allowed only where authorized by law or treaty rights. Cooperative management and collaboration are critical to protect marine fisheries because NPS and state agencies

frequently share jurisdiction over coastal resources. In some parks, statutory provisions control whether or not commercial fishing may occur and whether overall fisheries jurisdiction is held by the National Park Service, the states, or both concurrently. Although the National Park Service retains authority to implement regulations that are more restrictive than state regula-

tions, joint planning is frequently the best approach to protecting biological integrity and the quality of recreational fishing in the national parks. ■

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## Other Developments

### AWARD-WINNER PROFILE

#### Bond's ability to see the big picture helps preserve Big Island park

Dr. Stanley C. Bond is employed by the Kaloko-Honokohau National Historical Park in Hawaii, and he's good at his job. For Stan, it's the ability to see the "big picture" that distinguishes him. "I take a holistic look at the park; I understand how everything works together to interpret native Hawaii." And it's the challenge to keep all the parts working that motivates Stan to overcome all obstacles. His environmental leadership earned him the 2001 Trish Patterson Student Conservation Association Award for Natural Resource Management in a Small Park, presented in 2002. He did something no one else had ever done: he presented his concerns about the protection and preservation of the park's resources to the State of Hawaii Land Use Commission, and he prevailed.

In spring 2000 a plan to build an industrial park directly upslope from Kaloko-Honokohau required Stan's professional attention. He foresaw the negative impact that pollutants from the site could have on the park: two brackish water fishponds,

almost 600 acres of marine and coral reef habitat, several threatened and endangered species, and other hydrobiological resources were in danger. The county did not have adequate sewage treatment, storm-water runoff control, or roadway infrastructure, and until it did, a project of this magnitude would be detrimental to the park. Because Stan's training is in archeology, he gathered helpers: a marine biologist and a brigade of experts in all forms of water sciences, a Department of the Interior solicitor, stakeholders, and community groups. Together they worked for strict conditions to be placed on the project to protect the park. After a two-year struggle, the Land Use Commission concurred with the recommendations of Stan and his crew.

Stan's foresight, motivation, and leadership set a new standard by which Hawaii and the rest of the United States will view their natural resources in the future. ■



Stanley Bond (left) and a hula teacher play wooden drums made from dead milo trees harvested in Kaloko-Honokohau. The park allows hula groups to use dead wood that would otherwise be cut and chipped by the park as a way to fulfill their mission to perpetuate native Hawaiian traditions.

#### Tribute to Dr. James R. Allen

by Mary Foley

On 30 July 2002, the National Park Service lost a valued treasure. While commuting to his office in Boston, USGS Coastal Geomorphologist Dr. James R. Allen suffered a heart attack and died. Jim was the National Park Service's key science advisor on major coastal erosion issues. He knew everything about coastal dynamics, and what he did not know he would strive to learn and understand. He was well respected and trusted.

Jim was passionate about the role of science in public policy decision making. The National Park Service does not need its scientists to serve as advocates for natural resource protection, he would

argue; it needs good science to guide its decisions. He was a great teacher, patiently instructing park managers, interpreters, lawyers, legislators, and coastal scientists alike on the state of the knowledge and complexities of shoreline dynamics in our national parks. The National Park Service, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and countless other state and federal agencies have benefited from his sound counsel.

Jim leaves a legacy of accomplishments in the National Park System. He had recently completed a major scientific investigation on erosion processes at Fire

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## Inventory and mapping of coastal resources in Glacier Bay National Park

by Phoebe Vanselow

NPS PHOTO



In 1989 the *Exxon Valdez* oil spill highlighted the need for detailed baseline data on Alaskan coastal resources to help guide response and recovery efforts. Baseline information also helps managers detect change over time, both natural and human-related. In 2002, Glacier Bay National Park and Preserve completed its sixth field season of the Coastal

Resources Inventory and Mapping Program. The program focuses on the development and implementation of an accurate, repeatable, and affordable inventory protocol that can be passed on for use on other coastlines in Alaska and beyond. To date, more than 880 miles of coastline in Glacier Bay National Park has been mapped, including all of Glacier Bay proper.

During low-tide “windows,” teams of two scientists walk the coast, dividing the shoreline into segments based on changes in substrate and slope. For each segment a variety of physical and biological attributes are described and digital images are recorded. The precise boundaries of the segments are drawn on aerial photo enlargements of the coastline. After data processing, all of the information is accessed via an easy-to-use database that allows one to “walk the coast” and display for any segment its exact location, an aerial photo of that segment, ground photos showing what the beach actually

looks like, and all coastal resource data associated with the segment.

In 2003, fieldwork using the current protocol will wind up. The more exposed, homogeneous shoreline of the outer coast of the park will likely be mapped using aerial videography. A public version of the database will be online in the next year or two, giving other researchers, oil spill responders, and the public easy access to the data with the ability to focus on what interests them most. Additional information is available at <http://www.nps.gov/glba/learn/preserve/projects/coastal/index.htm>. ■

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Island National Seashore, New York, that will contribute greatly to the long-term preservation of the park. He was also instrumental in establishing the Boston Harbor Islands National Recreation Area in Massachusetts. He provided the detailed geological analysis that supported the finding that this system of islands was indeed nationally significant and should be included in the National Park System. He lent his expertise to the newly developing Vital Signs Monitoring Program through the design of a shoreline monitoring protocol for all the seashore parks in the Northeast Region. Jim’s protocols will be used for decades to come.

Jim was dedicated to protecting the fragile coastal ecosystems of our national parks. He was also passionate about the accuracy of scientific information and its application to park management issues. These attributes will be difficult, if not impossible, to replace. Dr. James R. Allen will be sadly missed. ■

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Jim Allen

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